31 JUL 72

MEMORANDUM FOR: Director of Central Intelligence

Mr. Helms:

This memorandum is for your information.

At a recent Morning Meeting you sharply commented on fat employees. This is to let you know we got the message. I have a paper from John Tietjen which first expresses the medics' appreciation for your and any command support to their efforts to do something about the problem. He does, however, go on to say that, while weight reduction is itself desirable, it is only a part of the picture in cardiovascular disease. There are many other factors and in total there is a lot more they wish they knew.

John's paper suggests there may be some things that can be done to persuade employees to do something for themselves. We hope to have some specifics for you shortly.

[redacted] STAT

John W. Coffey

cc: Deputy Director of Central Intelligence
Director of Medical Services

ADD/S:RSW/ms (30 June 72)
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DDS 72-2577

27 June 1972

MEMORANDUM FOR: Deputy Director for Support

SUBJECT : Efforts in the Prevention of Coronary Artery Disease

REFERENCE : (a) Copy of Extract from DCI Morning Meeting Minutes of 2 June
(b) Note to DCI from Assistant to the Director (Angus Thuermer) re Weight Watchers Club
(c) Memorandum to Executive Director-Comptroller from Chief, ADP Training Staff, OCS, Subj: Resource One, dated 7 June 1972

ATT

I. Obesity

a. The Director's recent remarks regarding weight control are welcome. Our Medical Staff does battle daily with the problem of overweight among our personnel. Comments by the Director from time to time on overweight and other health matters can be most helpful in promoting our common objectives.

b. There is no doubt that overweight contributes to a variety of human ills, among them cardiovascular disease. Daily we hammer away at weight control and proper diet. It is most rewarding for the patient and the physician when such advice is heeded. The patient feels better, looks better and seems to have more energy. Weight reduction alone can reduce blood pressure, lighten the load on the heart and lower elevated blood sugar. A great deal can be accomplished many times through this single effort.

c. Our approach to the problem is varied. The greatest leverage comes through examination for a specific assignment.

SUBJECT: Efforts in the Prevention of Coronary Artery Disease

We disqualify for obesity. We also warn lesser offenders. The best leverage comes through annual examination procedures where wrap-up personal consultations are part of the routine. In addition we provide guidance through our outpatient and consultative services and through our educational efforts.

d. We have not found the problem of obesity to be simple. The condition serves the individual in a variety of ways. As a result, we tend to think that significant weight reduction should preferably be accomplished under a physician's guidance. Customarily, we so recommend. The loss of gratification that results from this regimen can be burdensome and unfortunate in many cases. It is commonplace for such efforts to be temporary. As a general rule, correction of an overweight condition is most successful when accessory medical evidence can point to the need for dietary discretion.

e. It would be helpful if the Director would reiterate his views from time to time that being overweight is unhealthy. Medical efforts can stand such backing. His remarks could help curb some of the overindulgence that goes with a well-fed society and correct any deceptive impression that the Agency might be getting soft. Beyond that, I suggest we proceed gingerly in individual cases.

II. Cardiovascular Disease

a. While overweight deserves attention, it is not our primary medical target. Cardiovascular disease is the major offender. Coronary artery disease is the leading killer. Our efforts are directed in large measure by these facts. The pathogenesis of these conditions is not well understood. There is some indication that dietary control should begin with the young. The disease process seems to begin early in life and to be associated with the nature of the diet. Dietary control in the adult according to this concept is of secondary value. To complicate matters, a variety of other offenders have been uncovered. These include elevated conditions of

SUBJECT: Efforts in the Prevention of Coronary Artery Disease

cholesterol, blood sugar, triglycerides and blood pressure. More recently, cigarette smoking and sedentary existence have been indicted. In some cases stress appears to play a role. A comprehensive article on this subject appeared in the 1 May 1972 issue of Newsweek, a copy of which is attached.

b. A brief account of our efforts in dealing with cardiovascular disease emphasizes our efforts at early detection. To that end we have gradually acquired early detection equipment, have honed our staff and consultant competence, and have exchanged experiences with experts in the field. These capabilities are cranked into all of our program procedures. As a result, I believe our professional efforts are effective and of acceptable quality.

III. Additional Measures

There are some general areas where we think more can be done.

a. Measurements:

It would be helpful if our Medical Office could quantitatively measure its accomplishments. Leaving out for the moment the difficulty in sorting out the relative contributions of the private physician, the employee and ourselves, there is a great amount of data that could be assembled but is as yet unavailable. Our recently submitted program plans reflect our needs to get a better handle on such measurements of disease incidence and change. Without measurements, it is difficult to state specifically where we are and where we are going. It is hoped that Agency management will share these views and support our efforts in this direction.

b. Services:

At present we are able to offer our examination services on only a limited basis to the Agency. Our submitted program

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plans call for extending these services eventually to provide examination opportunities to all personnel on some periodic basis. There are many problems associated with this objective and it will not be accomplished overnight. We need the support of Agency management to move in the planned direction.

c. Participants:

Medicine to be effective must be taken. Our prescriptions at times are not the most attractive. The prescribed formula to lessen the risk of heart disease in an individual is to (1) stop smoking; (2) remain slim; (3) eat a diet low in saturated fats; (4) get regular exercise; (5) drink moderately -- if at all; and (6) get proper rest. (It is also helpful if you are female and if you have ancestors who were free of cardiovascular disease.) This is not the easiest prescription to follow in our land of ease and abundance. The temptations not to follow it are great and of daily occurrence. One of the major problems in medicine is securing the cooperation of the patient. Education is helpful in this respect and we hope to devote more time to this in the future. Attached is a proposed Agency medical newsletter that may contribute to such purpose. (This is an early draft of a document for which changes have already been suggested. The final draft will, it is planned, be presented at a Deputies Meeting.) Other education measures are also possible depending on our resources.

d. One other observation is pertinent. The data base that we have identified and projected in our program plans as desirable may also serve a wider purpose. There is reason to believe that our medical experiences properly organized and analyzed might contribute to a better scientific understanding of the basic cardiovascular disease process. In this, however, our own people would still be the first beneficiaries.

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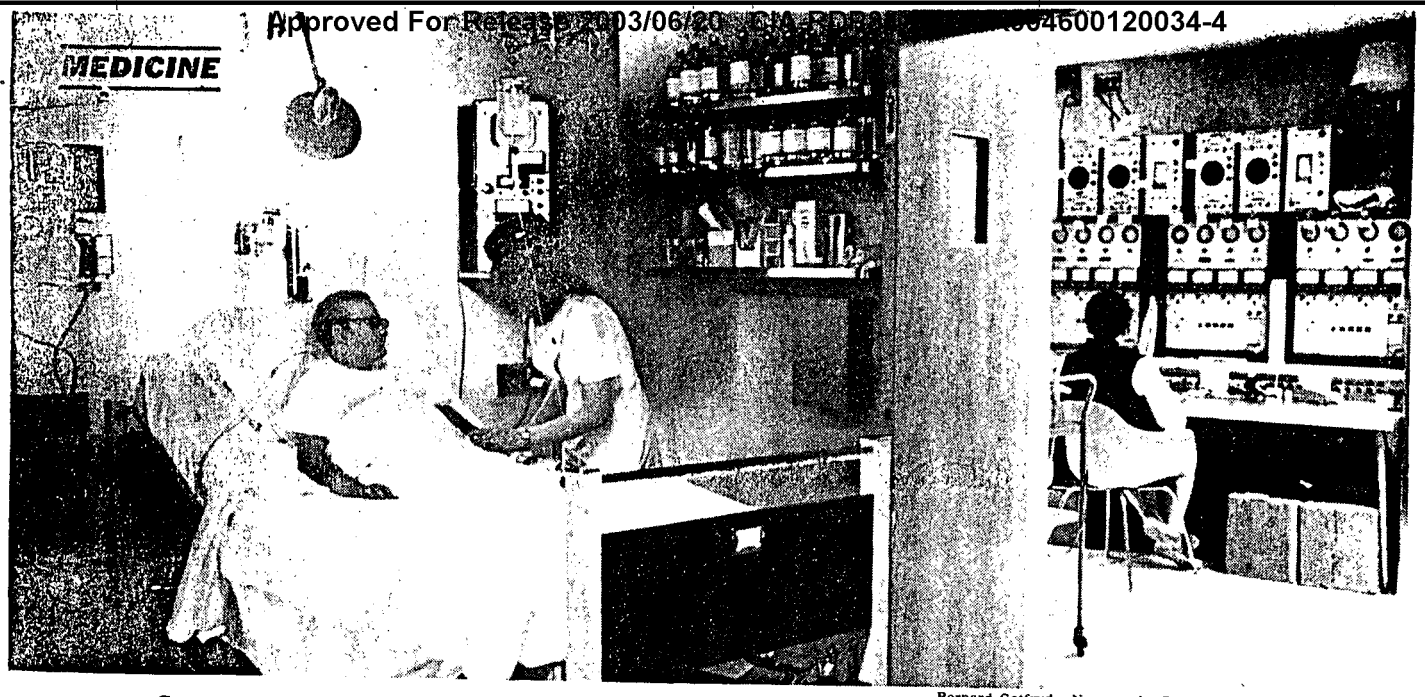
JOHN R. TIETJEN, M. D.
Director of Medical Services

Attachments



Bernard Gotfryd—Newsweek, Courtesy St. Vincent's Hospital

Coronary-care unit: With constant monitoring and fast action, 60,000 lives are saved each year

Heart Attack: Curbing the Killer

Oran Bentley, 43, a technician for a Houston instrumentation firm, had just settled down in his living room for a midmorning cup of coffee. Then, with devastating suddenness, it struck. Bentley felt a gnawing pain deep within his chest and an oppressive sensation of vise-like pressure, or squeeze, beneath his breast bone. It was the beginning of a heart attack.

The attack came one Saturday last March. As was his custom, Bentley had risen early, eaten a breakfast of bacon and eggs and gone out to work on the yard of his three-bedroom brick home. He was used to heavy work, and he didn't even work up a sweat trimming the branches off several trees and chopping down another. That's why the pain was so puzzling.

The first thing Bentley did was lie down on the floor. "It felt as if I could just lie down and stretch, it would go away," he recalls. When that didn't work, he went outside and walked around; by this time, he was having trouble getting his breath. The pain was also becoming more intense and spreading to his shoulders. Just as his legs gave way and he slumped slowly on the patio, Bentley's daughter saw him and called a doctor. In five minutes, a fire department ambulance was rushing him to St. Luke's Episcopal Hospital.

Bentley doesn't remember what happened next, but three minutes after he arrived in the emergency room his heart fibrillated; the ventricles shivered and stopped pumping blood. Fortunately, this potentially lethal episode was spotted at once by a technician watching Bentley's electrocardiograph monitor and electrodes quickly placed on his chest shocked the heart back to normal rhythm. When Bentley came to, he was lying in the hospital's coronary-care unit, his body enmeshed in wires and tubes that enabled doctors and nurses to maintain constant vigil over his heartbeat and take immediate action should another arrhythmia occur. Fortunately, all went well. Last week, Bentley was convalescing at home and expecting to go back to work by June.

Heart attacks strike more than 1 million Americans each year, and Oran Bentley's case dramatizes a frightening new trend. For at 43, Bentley is one more of a steadily growing number of relatively young men to be stricken by coronaries. One has only to scan recent headlines and obituaries to find other examples, many of them more tragic than Bentley's. New York Mets manager Gil Hodges was only 47 when he was fatally stricken after a round of golf earlier this month. Former President Lyndon B. Johnson, recovering last week from his second coronary, was 46 when he suffered his first, nearly fatal, heart attack in 1955. Last fall, Detroit Lions wide receiver Chuck Hughes, who was only 28, collapsed and died during a game. Dave Stallworth, now playing for the Baltimore Bullets, was lucky enough to survive the coronary he suffered five years ago at 25.

According to the American Heart Association, the trend for heart attacks among younger men has been rising steadily for two decades. For men between 25 and 44, the coronary death rate has gone up 14 per cent—from 46 to 52 per 100,000 since 1950. The mortality among men between 45 and 64 has risen 4 per cent—from 575 to 598 per 100,000. True, heart attacks predominantly strike the elderly. But 176,000 of the 675,000 Americans who will die from coronaries this year will be under the age of 65, victims of what public health officials call "premature" heart disease.

But Bentley's case is also dramatic evidence of a more hopeful trend in the fight against heart disease. Had his heart attack occurred just six years ago, he almost certainly would have died from his episode of fibrillation. Then few hospitals, including St. Luke's in Houston, equipped their emergency rooms with portable monitors and defibrillators. And fewer still had coronary-care units for the detection and treatment of the early complications of heart attacks. Today, the majority of the nation's 7,000 hospitals have such units, and they are credited with saving up to 60,000 lives each year. This week at the Inter-American Congress on Cardiology, a Harvard surgeon will describe some daring new surgical methods for further reducing deaths among patients hospitalized after heart attacks.

Death Comes in Seconds

But the tragic fact remains that all the innovations have had relatively little impact on the growing death toll from coronaries. More than half of those who die of heart attacks each year never reach a hospital, with its life-saving technology. For many, like Gil Hodges and Chuck Hughes, death comes in a matter of seconds or minutes. These deaths explain in good measure why the death rate from heart attacks has failed to take a downward turn—despite the best efforts of researchers and clinicians. As a cause of death, heart attacks continue to take more lives each year than are lost to

cancer, strokes and accidents combined.

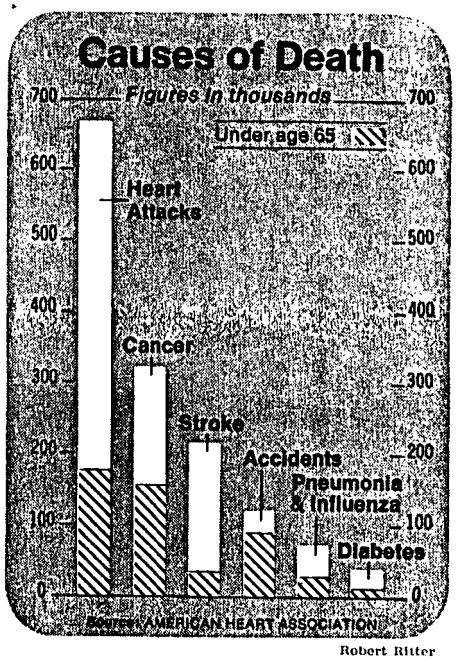
Once considered an inevitable consequence of growing old, heart disease emerged as a national epidemic early in the century. The epidemic increased in ferocity as control of such major disease killers as diphtheria and pneumonia extended the life span of the average American and lofted him into the coronary-prone age ranges. But to many public-health experts, that is only part of the story. The transition from a predominantly rural to an affluent urban culture has also changed the average American's life-style. Its hallmarks: a rich diet, sedentary living, cigarette smoking and a high input of tension. "Just as TB was the prevalent disease in a young industrial society," says Dr. Jeremiah Stamler, director of the Chicago Coronary Prevention Evaluation Program, "the disease of a mature industrial society is coronary disease."

Clearly, the coronary epidemic will not be curbed, as the infectious diseases were, by the simple development of drugs or vaccines. If experts like Stamler are right, nothing less than a restructuring of the American way of life may be required to bring heart disease under control. And there is still serious question whether a massive change in diet or other patterns of life-style will appreciably reduce coronary deaths. But the evidence is accumulating that for the first time there is real hope that a major assault can be mounted on many levels against the nation's No. 1 killer.

Seek Out the Mysteries

Within the next few weeks, Congress is expected to authorize the National Heart and Lung Institute to spend $1.4 billion over the next three years on the initial phases of the attack. Doctors can now predict with reasonable certainty just which Americans have the greatest risk of suffering heart attacks, and part of this expenditure will go to establish prevention clinics throughout the U.S. The bill will also provide for 30 brand-new centers for basic and clinical research.

Already, NHLI has launched a series of studies to determine once and for all whether a change in living patterns—including the diet—would benefit the average American. Other studies are designed to improve treatment of coronary victims. Further basic research is under way to seek out the mysteries of the insidious process that underlies most disorders of the heart and blood vessels—atherosclerosis. "What is hanging over all of our heads," says Dr. Stephen Scheidt, a cardiologist at New York Hospital-Cornell Medical Center, "is the genesis of atherosclerosis. And, in my opinion, it is a pediatric problem."



Annual mortality rates in U.S.

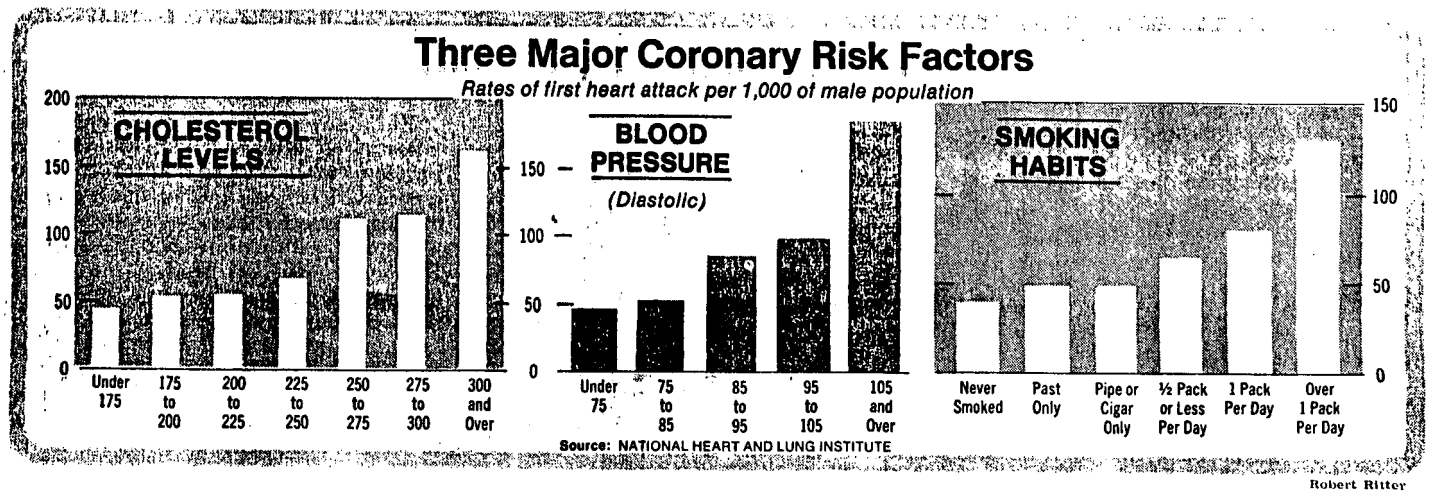
Simply put, atherosclerosis is the gradual accumulation of pearly-gray deposits of fatty substances and fibrous tissue in the lining of the body's arteries, and most researchers agree that it begins early in life. Yellowish fatty streaks can be found in the aortas of children by the age of 3, and in the coronary arteries of 10-year-olds. Although harmless in themselves, they are believed to form the foundation for atherosclerotic deposits. Such deposits can interfere with the blood flow in many arteries in the body, including the brain, where they account for most of the strokes that take more than 200,000 lives in the U.S. each year. In the arteries of the heart, they account for heart attacks. Postmortem examination of young men killed in the Korean War—a classic study in the atherosclerotic process—showed that nearly 8 out of 10 had appreciable atherosclerosis of the coronary arteries; in 10 per cent, the process had already closed off most of one or more major arteries. By the age of 50, the coronary arteries of most Americans show significant signs of atherosclerosis.

Miles of Blood Vessels

The heart is basically a hollow muscle, and no muscle in the body is more dependent on an adequate supply of oxygen-bearing blood. Roughly 100,000 times a day, the heart contracts with sufficient force to pump blood through 60,000 miles of blood vessels. The heart muscle receives the blood to accomplish this job through the two coronary arteries, so-called because they lie like a crown over the top of the heart. Most vulnerable to atherosclerosis is the left coronary artery that feeds the left ventricle, the heart's main pumping chamber.

Coronary heart disease occurs when the supply of blood to the heart muscle no longer meets its demand for oxygen. It may take the form of angina pectoris, periodic pain in the chest usually developing at times of physical exertion or emotional stress. Narrowed by atherosclerosis, the coronary arteries are not quite capable of delivering sufficient blood to the heart muscle at such times. Patients may live for a number of years with periodic bouts of angina, relieving the symptoms with rest or with drugs such as nitroglycerin.

The typical heart attack may occur without warning and is usually thought to be caused by the formation of a blood clot over an atherosclerotic deposit, completely blocking one of the coronary arteries or its branches. Recently, a number of pathologists have come to believe that many coronary occlusions may be directly caused by total blockage by atherosclerosis, which would call into question the value of anti-coagulants as a means of preventing or treating heart at-



tacks. In any case, the result of a coronary occlusion is myocardial infarction, the death of part of the heart muscle. What determines whether the victim of a myocardial infarction survives is how much of the muscle is destroyed and how well collateral branches of the coronary arteries can take over blood supply once provided by the occluded vessel.

But death can also strike swiftly because of disruption of the nerve system that controls the heartbeat, leading to arrhythmias such as fibrillation or cardiac arrest. Victims of this kind of sudden death may include persons with long-standing angina or in the early stages of an infarction. In many cases, however, the patient has no warning of an impending attack; even a minimal amount of atherosclerosis can trigger a fatal arrhythmia if situated in a critical area of the heart. Such deaths account for most of those occurring outside the hospital.

But thousands of Americans die or risk death because they are unable to recognize the early symptoms of a heart attack and seek help in time (page 79). Many others are psychologically unwilling to face up to the possibility that they may have suffered a coronary. In a survey of 160 coronary patients who eventually did arrive at a hospital, Doctors Arthur Moss and Sidney Goldstein of the University of Rochester found that there was an average delay of three and a half hours between the time the first symptoms appeared and hospitalization. In some cases, patients procrastinated for several days. Some patients confused their symptoms with stomach upsets, Moss and Goldstein reported, while others gave excuses for delaying treatment such as an unwillingness to bother their doctors at night. Many patients, Moss and Goldstein concluded, defer treatment out of psychological denial and fear of hospitalization.

The fact is, however, that now more than ever the hospital is the place for a coronary victim to be. In the early 1960s, before coronary-care units became commonplace, a third of patients admitted to hospitals died. But the CCU's have reduced the death rate by at least half, largely by preventing and treating potentially fatal arrhythmias such as ventricular fibrillation and ventricular tachycardia—the potentially lethal rapid contraction of the ventricle.

Nearly every patient admitted with a suspected heart attack at New York Hospital, for example, is taken to the fifteen-bed CCU where he is quickly hooked up to monitoring devices. At a central station, specially trained nurses monitor the electrocardiograms of each patient; if a major irregularity in the heartbeat occurs, an alarm signal summons help to the patient's bedside. Recently, round-the-clock monitoring has made it possible for CCU staff physicians and nurses to prevent major rhythm disturbances. The monitors disclose premature contractions of the ventricles, subtle irregularities in the heart rhythm that are now known to trigger fibrillation and tachycardia. These irregularities can often be corrected by intravenous doses of lidocaine, a local anesthetic similar to Novocain and used as a heart drug since the mid '60s. "Lidocaine," says Scheidt, "is a true wonder drug."

Since every minute after a heart attack counts, hospitals now use mobile CCU's to bring the life-saving benefits of cardiac monitoring and resuscitation to the patient stricken at home. Just such a unit, directed by Dr. Richard Crampton of the University of Virginia Medical Center and equipped with a portable monitor and defibrillator, was dispatched to former President Johnson's side when he was stricken three weeks ago while visiting his daughter and son-in-law, Mr. and Mrs. Charles Robb, in Charlottesville.

Shelly Katz—Camera 5

Cooper (left) and patient: Can exercise prevent coronaries?

But many coronary victims, even if saved from the sudden death of arrythmia, may yet succumb from cardiogenic shock, a complication that accounts for nearly 15 per cent of deaths among hospitalized heart-attack patients. This kind of shock results from failure of the heart to maintain sufficient pumping action due to extensive damage to the cardiac muscle. The victim's blood pressure drops precipitously, depriving major body organs, including the kidneys and brain, of blood. Although drugs such as adrenalin sometimes relieve early signs of pump failure, nine out of ten stricken with cardiogenic shock die. Thus, shock remains the major unresolved problem in the treatment of heart attack victims in the hospital.

Recently, however, two dramatic surgical techniques to prevent cardiogenic shock have come under intensive investigation. The first, developed by Adrian Kantrowitz of Detroit's Sinai Hospital, involves insertion of a device to assist the pumping action of the faltering heart. A plastic balloon is inserted through an artery in the patient's leg and brought to rest in the aorta, the body's main artery. Electronically coordinated with the action of the heart, the balloon inflates between each heartbeat and gives an extra boost to send blood through the patient's body.

Vein Grafts for Bypasses

In the other technique, some surgeons now operate on the heart itself to improve the blood supply to the heart muscle. Using an operation devised at the Cleveland Clinic for the relief of severe angina, they remove a section of a vein from the patient's leg. Pieces of the vein are then grafted from a point in the coronary artery above the site of the occlusion to a point below, providing a detour for blood to flow into the damaged heart muscle. The technique is still highly experimental and many physicians feel such surgery is too risky for coronary victims. But at the Inter-American Congress in San Francisco this week, Dr. Charles A. Sanders of the Massachusetts General Hospital will report that the balloon-assist device and vein-bypass grafts are saving a third of patients at his institution who otherwise would have died of cardiogenic shock.

At nine centers around the U.S., meantime, NHLI is sponsoring detailed research into the nature of heart muscle damage after heart attacks. In one set of studies, a balloon is inserted into the artery carrying blood from the lung to the heart to make delicate measurements of pressure in the left ventricle.

Sophisticated research on animals is also yielding new clues on ways to limit the damage caused by a coronary. In the early stages of a heart attack, the studies have shown, there is an area of the heart muscle that is permanently damaged surrounded by a larger area in which the trauma is reversible. "We are now on the verge of developing therapies," notes

How to Tell When You're Having a Heart Attack–And What to Do About It

KNOW THE SYMPTOMS

These are the usual warnings of heart attack:

- **Prolonged, heavy pressure or squeezing pain in the center of the chest, behind the breastbone.**
- **Pain may spread to the shoulder, arm, neck or jaw.**
- **Pain or discomfort is often accompanied by sweating. Nausea, vomiting and shortness of breath may also occur.**

Source: AMERICAN HEART ASSOCIATION

ACT IMMEDIATELY

- ***Sometimes these symptoms subside and then return. Don't wait. Minutes count. Act immediately.***
- ***Call your doctor and describe your symptoms.***
- ***If your doctor is not immediately available, get to a hospital emergency room at once.***
- ***The decision to act should not be left to the patient alone. It is also the responsibility of the wife, husband, relative or friend.***

Dr. Peter Frommer of NHLI, "which will reduce the size of the infarct—the amount of muscle that is going to die."

But new ways of treating the heart-attack victim, however effective, will not be enough to curb the coronary epidemic. Mass diseases, so the public-health axiom goes, require mass solutions. The control of TB owed more to improved sanitation in the cities than it did to any drug. Similarly, a growing number of experts agree, prevention rather than cure is the only hope for the control of heart disease. "We're now at the point," says Chicago's Doctor Stamler, "of delivering to doctors the ability to predict heart disease with a multiple set of measurements."

Born to High Risk

The measurements are based on a constellation of factors that have been linked in one degree or another with the occurrence of heart attacks. Two of the risk factors are beyond control, at least for the foreseeable future: these are heredity and membership in the male sex. Heart attacks, particularly those that strike at an early age, seem to run in families, although the precise genetic defects involved are unknown. There are a few relatively rare genetic diseases that result in extremely high levels of fatty substances in the blood and those who are affected by them have an inordinately high heart-attack risk. As for sex, hormonal differences are believed to account for the fact that heart attacks are five times more common among men than among women before the menopause. After the change of life, when estrogen production diminishes, the coronary disease rate for women begins to creep up.

Many other coronary risk factors, ranging from obesity and stress to physical inactivity and a tendency toward gout, can be brought under control. And hard evidence is gradually being assembled to show that such measures reduce the heart-attack risk. Of the entire constellation of risk factors, however, three stand out above all others and offer the most immediate hope for doing something about the coronaries; they are high levels of cholesterol in the blood, high blood pressure and cigarette smoking.

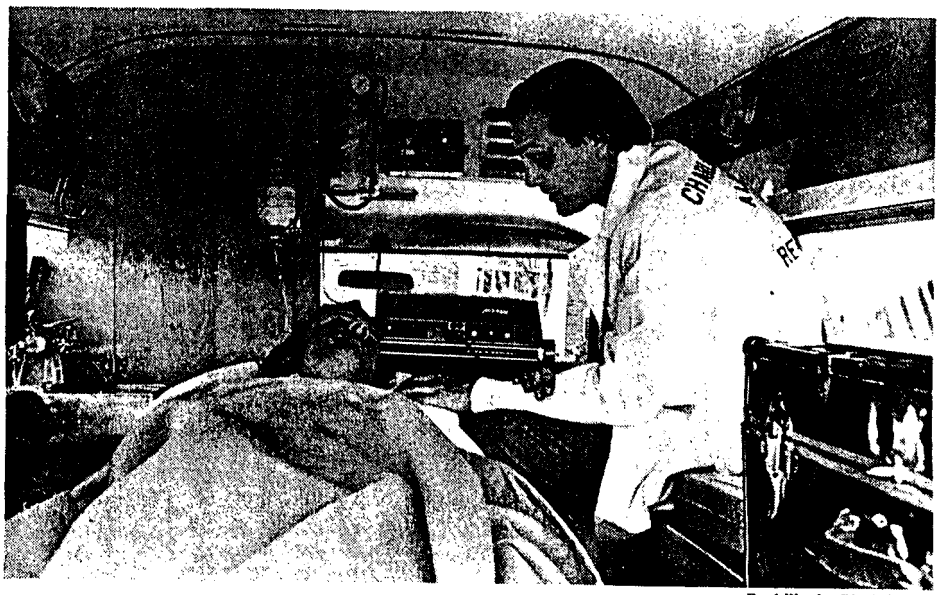
The pre-eminence of [illegible] tors has been shown dramatically in the combined results of a number of studies in which thousands of presumably healthy men and women have been carefully observed over a decade or more (page 74). Thus, men with cholesterol rates of more than 260 (milligrams per cubic centimeter of blood) are twice as likely to suffer heart attacks as those whose cholesterols are 200 or below. Among men whose diastolic blood pressure (the pressure between heart contractions) is 105 or above, heart attacks are three times as common as they are among men with readings of 85 or below. Men who smoke more than a pack of cigarettes a day run three times as great a risk of a coronary as those who have never smoked and are especially prone to sudden-death attacks. Finally, a man who combines all three of these factors multiplies his coronary risk eightfold.

Just how smoking plays a role in the development of heart attacks has not yet been established. It is known, however, that nicotine increases the heart rate and intensity of contraction and raises the oxygen requirement of the heart muscle. Smoking has also been found to increase the clotting tendency of the blood. The best guess at the moment is that smoking doesn't have anything to do with the development of atherosclerosis per se, but may trigger a heart attack in an individual whose arteries are already clogged. A man who gives up cigarettes reduces his risk of a heart attack to nearly the level of a non-smoker.

Half Don't Even Know

The link between high blood pressure and heart attacks is also largely unexplained. One theory is that increased pressure within the arteries tends to force cholesterol in the blood into the artery lining. Fortunately, several highly effective drugs, including reserpine and hydrochlorothiazide, are available for the control of hypertension and a recent study of 380 hypertensive men carried out by Dr. Edward W. Freis of the Washington VA Hospital suggests that these drugs can reduce the chance of heart attacks. The major problem with the large-scale prevention of heart disease by the control of high blood pressure is one of adequate diagnosis. More than half of the 20 million Americans who are hypertensive don't know it. And 7 out of 10 who do are not receiving adequate treatment. Moreover, many experts believe, even so-called "high normals" (90-95 diastolic) run an added risk of coronaries.

Of the trinity of major risk factors,



Fred Ward—Black Star

Crampton in mobile coronary unit

however, none has stimulated more controversy than the role of high cholesterol levels. Cholesterol is produced by the liver and plays an essential part in the structure of body cells and the synthesis of various hormones, including the sex hormones. But cholesterol, along with lesser amounts of a group of fatty substances called triglycerides, is a prime constituent of atherosclerotic deposits in the arteries. And researchers have long suspected that cholesterol floating in the blood is the source.

A diet high in cholesterol-containing foods, such as egg yolk and saturated fats, which are largely derived from meats and dairy products, tends to raise blood cholesterol levels. A number of surveys of populations in many parts of the world show almost without exception that cholesterol levels and heart-attack

Jeff Lowenthal—Magic Lantern

Stamler: Predicting heart disease

rates are lowest in countries where the diet is low in fats and cholesterol, and highest in nations where the diet is high in these substances. The latest such study, in which men ages 40 to 59 in seven countries were followed for about a decade, showed that Americans had four times as many heart attacks as Japanese. In the American diet, according to the study, 17 per cent of the calories were derived from saturated animal fats as compared with only 3 per cent in the Japanese diet.

Cholesterol levels can be lowered by reducing the total amount of fat in the diet and by substituting polyunsaturated fats, largely derived from vegetable sources such as safflower oil, for saturated fats. But as yet there has never been a definitive study proving that such dietary manipulations reduce heart-attack risk. Several small studies, however, suggest that this may be the case.

One of these studies involved 846 men between 54 and 88 at the Wadsworth VA

Robert R. McElroy—Newsweek

Joggers: Help or hazard?

Hospital in Los Angeles. Half the men ate only lean meats and specially processed foods such as hot dogs, cheese and ice cream that contained polyunsaturated rather than saturated fats. The remainder stuck to a diet with the normal American saturated-fat content. Those on the polyunsaturate regimen, it was found, had nearly a third fewer coronaries than those on the standard diet. The men on the polyunsaturate diet, however, did show a disconcerting increase in the risk of developing cancer. But whether their diet was responsible remains highly questionable.

You Must Change Your Life

Perhaps the most definitive test of whether lowering blood cholesterol will protect against heart disease is about to get under way at twelve centers under NHLI sponsorship. Some 3,600 persons suffering from genetic disorders leading to extremely high cholesterol and triglyceride levels will follow a strict diet and take a cholesterol-lowering drug, cholestyramine. In another NHLI study to be completed next year, 8,341 men who have had heart attacks have been taking various cholesterol drugs to see which, if any, offers protection against subsequent heart problems. By June, NHLI plans to launch a program to determine how some 11,000 Americans might overcome a multiple risk due to combinations of high cholesterol, heavy smoking and hypertension.

In a similar, but smaller, study Chicago's Stamler has already produced promising but inconclusive evidence that heart attacks can be avoided by comprehensive changes in life-style. He recruited more than 500 "high risk" volunteers in the 40-to-59 age range who agreed to modify their diets, smoking and exercise habits and lose weight. At the end of seven years, the volunteers have shown a death rate from coronary heart disease and sudden death 75 per cent lower than statistically expected rates.

The much-touted benefits of jogging and other forms of exercise now are questioned by a good many heart researchers, especially if undertaken by previously sedentary middle-aged men. If unsupervised, exercise can trigger sudden death in a deconditioned man, and no one in middle age should take up jogging without an EKG. However, a carefully planned training program tends to slow the heart rate and increase the efficiency of the heart muscle—or so many researchers contend. At the least, exercise may help control excess weight, in itself a coronary risk factor. At the Institute for Aerobics Research, Dr. Kenneth Cooper has put some 1,000 men, some of them victims of previous coronaries, through a regimen that includes jogging, tennis and handball. Its purpose is to bring each man up to the highest level of physical conditioning of which he is capable and encourage him to maintain it after he has left the institute. By 1975, Cooper will be ready to publish a five-year follow-up study that he hopes will prove whether steady exercise prevents coronaries.

The Mystery Factor

The role of emotional stress and the pressure-cooker urban environment as a contributing factor to heart attacks has been much publicized but remains largely undocumented. Most cardiologists agree that a sudden emotional shock can trigger a heart attack in an already predisposed individual, but whether long-term exposure to stress affects the heart or the atherosclerotic process hasn't been proved.

In one of the more intriguing investigations into the psychological aspects of heart disease, Drs. Meyer Friedman and Ray H. Rosenman of San Francisco's Mount Zion Hospital have delineated a coronary-prone personality pattern. Through careful interviews, the so-called type A man reveals himself as hard-driving, excessively ambitious and driven by deadline pressure. A type A man, Friedman claims, will give himself away every time by a tendency to finish his interviewer's questions for him. The more placid type B man, on the other hand, would regard such an interruption as impolite.

Among 3,500 men observed for four years, Friedman found that type A men had two and a half times as many coronaries as their type B counterparts. Friedman, who classifies himself as type A and has had a coronary to prove it, notes that such men run higher than normal cholesterols. But he believes the ab[illegible] and may not really have anything to do with the genesis of heart disease. "This type of man," Friedman says, "starts full speed on all organs. He starts showing biochemical disorders long before he has a coronary."

History is replete with examples of major diseases that have been brought under control before their causes were fully understood. William Jenner did not know smallpox was caused by a virus. Even today, the most astute endocrinologist can't explain how insulin controls diabetes. Perhaps the same will apply to the conquest of heart disease.

In any case, with the major risk factors so well identified, many experts think that now is the time to try to save lives by intensive screening programs to find the estimated 20 per cent of the population that is vulnerable to heart attacks and begin preventive therapy. Any doctor can tell if his patient has an elevated cholesterol or high blood pressure, smokes or is overweight. But the success of treatment will depend largely on the patient and his willingness to change his life. "The potential heart-attack victim," notes Dr. William Kannel of NHLI, a pioneer in the identification of risk factors, "is going to have to play an active role in his own salvation. He can't depend on his doctors to bail him out."

But to have the greatest impact, preventive measures should begin before the signs and symptoms of atherosclerosis appear. Even without final proof of effectiveness, the heart experts insist that all Americans should make prudent changes in their diets. Children would stand to benefit the most, since there is evidence that early changes in the arteries can actually be reversed by reducing cholesterol levels. Indeed, today's children, placed on a low-fat regimen and taught to avoid smoking, could become the first generation of Americans to see the coronary epidemic subside.

Kent Biffle—Newsweek

Bentley: Shocked to life

EXECUTIVE HEALTH NEWSLETTER

April 1972

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Annual Physical Examination.

It might be of interest to review what is done in our current executive annual physical examination. Currently, our examinations are done in three stages, and often because of additional studies, will include extra stages.

The first stage consists of laboratory screening, which includes visual examination for near and distant vision, a hearing test which measures hearing changes in the speech frequencies, and a tonometric examination which is done to detect early stages of glaucoma (increased pressure within the eye than can be asymptomatic but can lead to visual loss).

The laboratory studies include a complete urinalysis in which the urine is examined for albumin, sugar, and microscopically for the presence of cells and bacteria. Blood studies are done and include hematocrit, which will detect anemia, a blood test of thyroid function, and then 12 determinations on our SMA 12/60 Autoanalyser. These latter determinations are done automatically and results are printed out on a graph form as well as directly typed out. On the next page you will see an example of the type reading the physician receives.

The various measurements done on the blood include:

1. Calcium and phosphorus which reflect bone metabolism.

2. Glucose, the determination of blood sugar which will detect diabetes and early stages of diabetes.

3. BUN (blood urea nitrogen) which is a test of kidney function.

4. Uric acid, which gives a reading on the possibility of gout and may also be altered by certain medicines.

5. Cholesterol readings, which parallel possible arteriosclerosis.

6. Total protein and albumin which reflect the general well-being of the body and detect diseases of the liver and bone marrow.

7. Bilirubin, a reflection of bile pigments in blood which may detect alterations in liver function and also abnormalities in which blood corpuscles are being destroyed too rapidly.

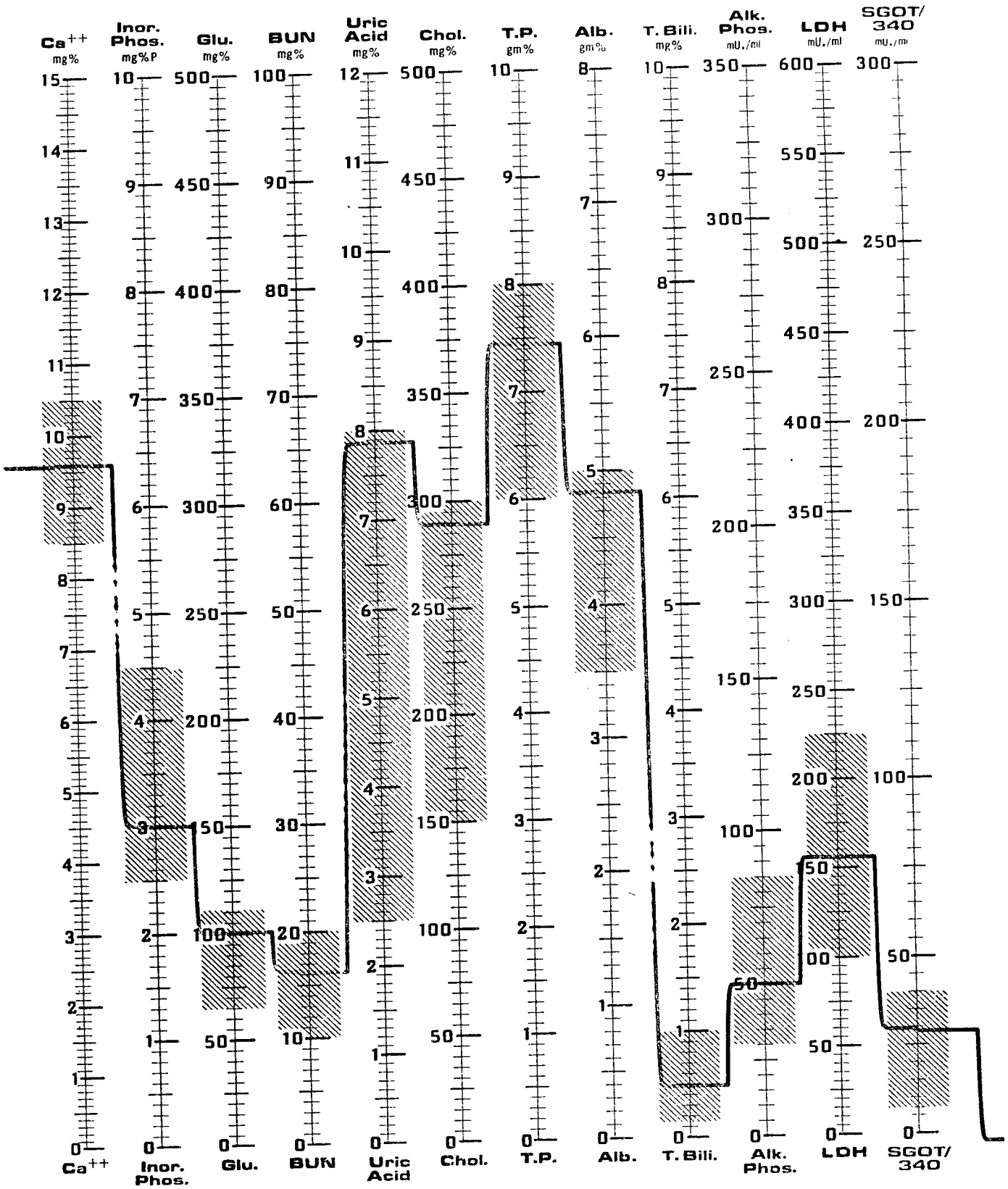

Figure 1. Autoanalyser graph

8. Alkaline phosphatase, an enzyme which is altered by changes in bone metabolism and liver disease.

9. LDH and SGOT, enzymes which may reflect heart disease, liver disease.

At the time of the actual examination, the laboratory studies are available for the physician to review; in addition, a chest X-ray has been done and an electrocardiogram has been taken which is now being interpreted by computer.

HEALTH TOPICS

Factors Favoring Development of Coronary Artery Disease.

The risk factors favoring the development of coronary artery disease are recognized to be hypertension (high blood pressure), smoking, obesity, increased blood lipids (cholesterol and triglycerides), lack of exercise, elevated blood levels of uric acid, diabetes mellitis, and a family history of coronary artery disease. In all cases except the family history, these risk factors can be reversed or reduced through medical therapy, self-discipline, and changes in habits. Recognition of these risk factors is obvious in some cases and requires medical and laboratory examinations in others. An awareness of these factors and vigorous attempts to reverse them are strongly recommended. Discussions of these risks and other related problems will appear in future newsletters.

Impact of Heart Disease in the United States.

Coronary artery disease affects over 20 million people in the United States. Each year, more than 600,000 persons die from myocardial infarction, or "heart attack." More than half of these persons die before reaching medical care. The total cost of illness exceeds ten billion dollars each year. Over 50 million man-days of production are lost each year because of coronary atherosclerotic heart disease. Gradually progressive, supervised physical activity programs following heart attacks have been instituted in 1,500 patients at Grady Memorial Hospital in Atlanta, Georgia, and have allowed a more rapid return to normal living. Early ambulation has been helpful both psychologically and physiologically in most. It has been estimated that if the duration of hospitalization for each patient with a heart attack could be *safely* decreased by just one day, in the course of a year, it would reduce the cost of medical care in this country by 400 million dollars.

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A Fordham Hospital group in New York has found that ten heart patients pumped less blood one-half hour after drinking two ounces of 86 proof whiskey compared to pre-drinking levels. Four *non*-cardiac patients pumped *more* blood after alcohol. At Mount Sinai Medical School, muscle deterioration, possibly in the heart also, occurred in three non-alcoholics given a fifth of 86 proof whiskey every day for four weeks. Normalcy was returned on cessation of drinking. It is concluded that in the presence of heart disease, the drinking of alcohol may be hazardous.

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The United States Surgeon General's new report on cigarette smoking reinforces evidence of tobacco links to lung cancer, unsuccessful pregnancy, and coronary heart disease. It also describes the plight of the non-smoker surrounded by tobacco smoke. The burning of a fair amount of tobacco in a confined space can clearly push the carbon monoxide concentration to and over the threshold limits set by Federal law for occupational exposure. There is some risk, for example, for a non-smoker driving in a car full of smokers. The levels of carbon monoxide exposures are not too different from those that have been associated with "altered hearing, visual acuity loss, and a loss of ability to distinguish brightness." At carbon monoxide levels similar to those at an average party, heart disease patients show symptoms of heart muscle oxygen lack. It is clear that the smoker may place at risk not only himself but also those around him.

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The FDA has removed saccharin from the so-called GRAS (generally recognized as safe) list and has set the safe average adult intake at one gram per day. This amount is the equivalent of about seven 12 ounce bottles of diet soft drink. The 20 test rats which were studied and which influenced that decision received a diet of 5% saccharin for two years. For man, that would equal 875 bottles of diet cola a day. Three of the 20 rats studied had signs of bladder tumor at the end of the experiment; whether the tumors were cancerous or not has not yet been determined.

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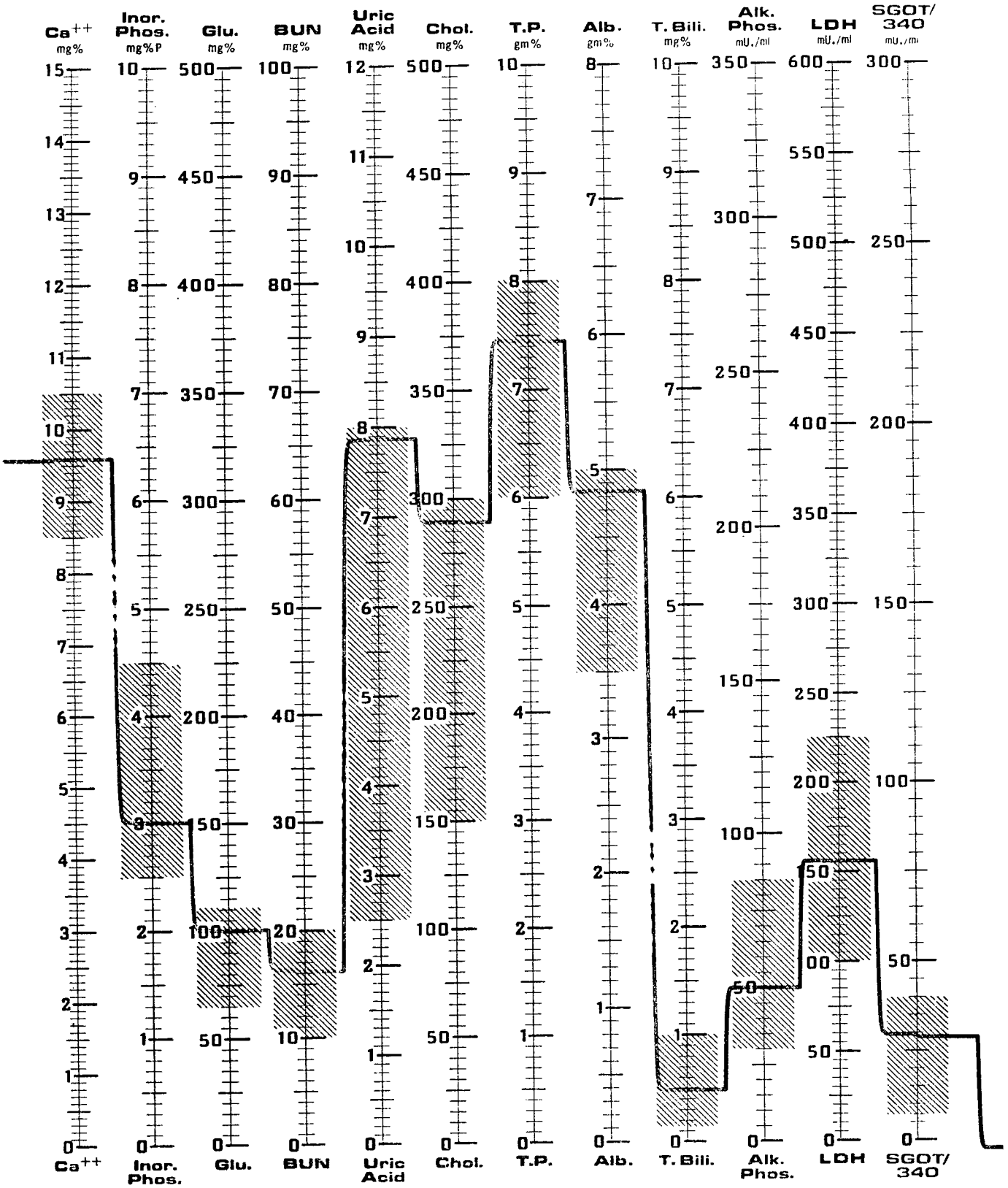

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TRANSMITTAL SLIP	DATE 28 June 1972

TO: Mr. Coffey

ROOM NO.	BUILDING

REMARKS:

Recommend your signature.

Robert S. Wattles

FROM:

ROOM NO.	BUILDING	EXTENSION

FORM NO. 241 1 FEB 55 REPLACES FORM 36-8 WHICH MAY BE USED. (47)

I suggest we hold this copy temporarily until all "action" is complete.

p.

27 June 1972

MEMORANDUM FOR: Deputy Director for Support

SUBJECT : Efforts in the Prevention of Coronary Artery Disease

REFERENCE : (a) Copy of Extract from DCI Morning Meeting Minutes of 2 June
(b) Note to DCI from Assistant to the Director (Angus Thuermer) re Weight Watchers Club
(c) Memorandum to Executive Director-Comptroller from Chief, ADP Training Staff, OCS, Subj: Resource One, dated 7 June 1972

ATT

I. Obesity

a. The Director's recent remarks regarding weight control are welcome. Our Medical Staff does battle daily with the problem of overweight among our personnel. Comments by the Director from time to time on overweight and other health matters can be most helpful in promoting our common objectives.

b. There is no doubt that overweight contributes to a variety of human ills, among them cardiovascular disease. Daily we hammer away at weight control and proper diet. It is most rewarding for the patient and the physician when such advice is heeded. The patient feels better, looks better and seems to have more energy. Weight reduction alone can reduce blood pressure, lighten the load on the heart and lower elevated blood sugar. A great deal can be accomplished many times through this single effort.

c. Our approach to the problem is varied. The greatest leverage comes through examination for a specific assignment.

SUBJECT: Efforts in the Prevention of Coronary Artery Disease

We disqualify for obesity. We also warn lesser offenders. The best leverage comes through annual examination procedures where wrap-up personal consultations are part of the routine. In addition we provide guidance through our outpatient and consultative services and through our educational efforts.

d. We have not found the problem of obesity to be simple. The condition serves the individual in a variety of ways. As a result, we tend to think that significant weight reduction should preferably be accomplished under a physician's guidance. Customarily, we so recommend. The loss of gratification that results from this regimen can be burdensome and unfortunate in many cases. It is commonplace for such efforts to be temporary. As a general rule, correction of an overweight condition is most successful when accessory medical evidence can point to the need for dietary discretion.

e. It would be helpful if the Director would reiterate his views from time to time that being overweight is unhealthy. Medical efforts can stand such backing. His remarks could help curb some of the overindulgence that goes with a well-fed society and correct any deceptive impression that the Agency might be getting soft. Beyond that, I suggest we proceed gingerly in individual cases.

II. Cardiovascular Disease

a. While overweight deserves attention, it is not our primary medical target. Cardiovascular disease is the major offender. Coronary artery disease is the leading killer. Our efforts are directed in large measure by these facts. The pathogenesis of these conditions is not well understood. There is some indication that dietary control should begin with the young. The disease process seems to begin early in life and to be associated with the nature of the diet. Dietary control in the adult according to this concept is of secondary value. To complicate matters, a variety of other offenders have been uncovered. These include elevated conditions of

SUBJECT: Efforts in the Prevention of Coronary Artery Disease

cholesterol, blood sugar, triglycerides and blood pressure. More recently, cigarette smoking and sedentary existence have been indicted. In some cases stress appears to play a role. A comprehensive article on this subject appeared in the 1 May 1972 issue of Newsweek, a copy of which is attached.

b. A brief account of our efforts in dealing with cardiovascular disease emphasizes our efforts at early detection. To that end we have gradually acquired early detection equipment, have honed our staff and consultant competence, and have exchanged experiences with experts in the field. These capabilities are cranked into all of our program procedures. As a result, I believe our professional efforts are effective and of acceptable quality.

III. Additional Measures

There are some general areas where we think more can be done.

a. Measurements:

It would be helpful if our Medical Office could quantitatively measure its accomplishments. Leaving out for the moment the difficulty in sorting out the relative contributions of the private physician, the employee and ourselves, there is a great amount of data that could be assembled but is as yet unavailable. Our recently submitted program plans reflect our needs to get a better handle on such measurements of disease incidence and change. Without measurements, it is difficult to state specifically where we are and where we are going. It is hoped that Agency management will share these views and support our efforts in this direction.

b. Services:

At present we are able to offer our examination services on only a limited basis to the Agency. Our submitted program

SUBJECT: Efforts in the Prevention of Coronary Artery Disease

plans call for extending these services eventually to provide examination opportunities to all personnel on some periodic basis. There are many problems associated with this objective and it will not be accomplished overnight. We need the support of Agency management to move in the planned direction.

c. Participants:

Medicine to be effective must be taken. Our prescriptions at times are not the most attractive. The prescribed formula to lessen the risk of heart disease in an individual is to (1) stop smoking; (2) remain slim; (3) eat a diet low in saturated fats; (4) get regular exercise; (5) drink moderately -- if at all; and (6) get proper rest. (It is also helpful if you are female and if you have ancestors who were free of cardiovascular disease.) This is not the easiest prescription to follow in our land of ease and abundance. The temptations not to follow it are great and of daily occurrence. One of the major problems in medicine is securing the cooperation of the patient. Education is helpful in this respect and we hope to devote more time to this in the future. Attached is a proposed Agency medical newsletter that may contribute to such purpose. (This is an early draft of a document for which changes have already been suggested. The final draft will, it is planned, be presented at a Deputies Meeting.) Other education measures are also possible depending on our resources.

d. One other observation is pertinent. The data base that we have identified and projected in our program plans as desirable may also serve a wider purpose. There is reason to believe that our medical experiences properly organized and analyzed might contribute to a better scientific understanding of the basic cardiovascular disease process. In this, however, our own people would still be the first beneficiaries.

JOHN R. TIETJEN M.D.

JOHN R. TIETJEN, M. D.
Director of Medical Services

Attachments